

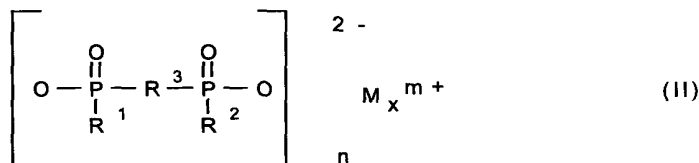
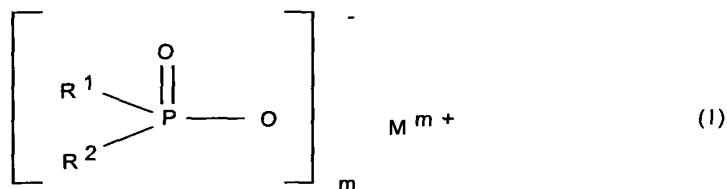
Amendments to the Claims

2002DE131

claims

1. (Currently Amended) A granular flame-retardant composition ~~composed~~ comprising an organophosphorus flame-retardant component, and of at least one binder.

2. (Currently Amended) The granular flame-retardant composition as claimed in claim 1, wherein the organophosphorus flame-retardant component ~~comprises~~ is selected from the group consisting of a phosphinic salt of the formula (I), ~~and/or~~ a diphosphinic salt of the formula (II) ~~and/or~~ polymers of these (component A),



where

R^1 and R^2 are identical or different and are C_1 - C_6 -alkyl, linear or branched, ~~and/or~~ aryl;

R^3 is C_1 - C_{10} -alkylene, linear or branched, C_6 - C_{10} -arylene, -alkylarylene, or -arylalkylene;

M is Mg, Ca, Al, Sb, Sn, Ge, Ti, Zn, Fe, Zr, Ce, Bi, Sr, Mn, Li, Na, K, ~~and/or~~ a protonated nitrogen base;

m is from 1 to 4;

n is from 1 to 4;

x is from 1 to 4.

3. (Currently Amended) The granular flame-retardant composition as claimed in claim 1 ~~or 2~~, wherein M is calcium, aluminum or zinc.

4. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 3~~ claim 1, wherein R¹ and R² are identical or different and are C₁-C₆-alkyl, linear or branched, ~~and/or~~ phenyl.

5. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 4~~ claim 1, wherein R¹ and R² are identical or different, and are methyl, ethyl, n-propyl, isopropyl, n-butyl, tert-butyl, n-pentyl, ~~and/or~~ phenyl.

6. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 5~~ claim 1, wherein R³ is methylene, ethylene, n-propylene, isopropylene, n-butylene, tert-butylene, n-pentylene, n-octylene, or n-dodecylene; phenylene; ~~or~~ naphthylene; methylphenylene, ethylphenylene, tert-butylphenylene, methylnaphthylene, ethylnaphthylene, ~~or~~ tert-butylnaphthylene; phenylmethlene, phenylethylene, phenylpropylene, or phenylbutylene.

7. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 6~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component also comprise(s)~~ further comprises a compound selected from the group consisting of melamine phosphate, dimelamine phosphate, melamine pyrophosphate, melamine polyphosphates, melam polyphosphates, melem polyphosphates, ~~and/or~~ melon polyphosphates.

8. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 7~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component also comprise(s)~~ further comprises at

least one melamine condensation products, ~~such~~ selected from the group consisting of as melam, melem, and/or melon.

9. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 8~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component also comprise(s)~~ further comprises a compound selected from the group consisting of oligomeric esters of tris(hydroxyethyl) isocyanurate with aromatic polycarboxylic acids, benzoguanamine, tris(hydroxyethyl) isocyanurate, allantoin, glycoluril, melamine, melamine cyanurate, dicyandiamide, and/or guanidine.

10. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 9~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component comprise(s)~~ further comprises nitrogen-containing phosphates of the formulae $(\text{NH}_4)_y \text{H}_{3-y} \text{PO}_4$ and, respectively, $(\text{NH}_4 \text{PO}_3)_z$, where y is from 1 to 3 and z is from 1 to 10 000.

11. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 9~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component comprise(s)~~ further comprises as component B, a compound selected from the group consisting of a synthetic inorganic compound and/or a mineral product.

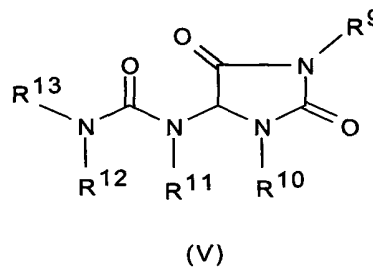
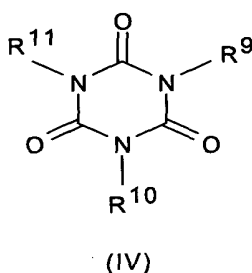
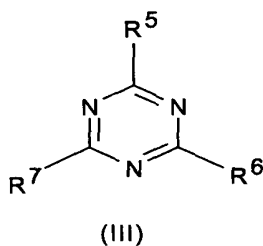
12. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 11~~ claim 11, wherein component B is selected from the group consisting of an oxygen compound of silicon, ~~is~~ magnesium compounds, ~~is~~ metal carbonates of metals of the second main group of the Periodic Table, ~~is~~ red phosphorus, ~~is~~ zinc compounds, ~~or is~~ and aluminum compounds.

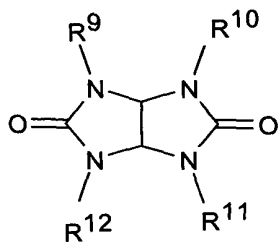
13. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to~~ claim 12, wherein the oxygen compounds of silicon are

selected from the group consisting of salts and esters of orthosilicic acid and condensation products thereof, are silicates, zeolites, and silicas, are glass powder, glass/ceramic powder, or and ceramic powder; wherein the magnesium compounds are selected from the group consisting of magnesium hydroxide, hydrotalcites, magnesium carbonates, or and magnesium calcium carbonates; wherein the zinc compounds are zinc oxide, zinc stannate, zinc hydroxystannate, zinc phosphate, zinc borate, or and zinc sulfides; and wherein the aluminum compounds are selected from the group consisting of aluminum hydroxide or and aluminum phosphate.

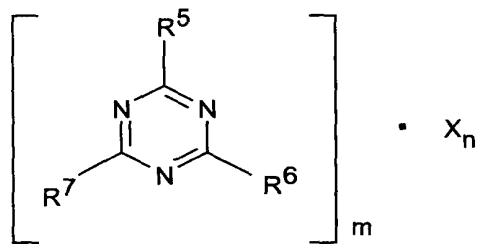
14. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 13~~claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component comprise(s)~~further comprises at least one nitrogen compounds compound as further component C.

15. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to claim~~ claim 14, wherein the nitrogen compounds are those of the formulae (III) to (VIII) or mixtures thereof

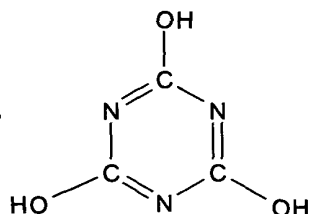
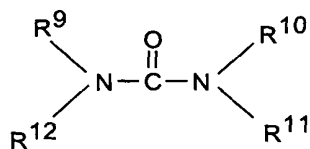




(VI)



(VII)



(VIII)

where

R^5 to R^7 are hydrogen, C_1 - C_8 -alkyl, or C_5 - C_{16} -cycloalkyl or -alkylcycloalkyl, unsubstituted or substituted with a hydroxy function or with a C_1 - C_4 -hydroxyalkyl function, ~~or are~~ C_2 - C_8 -alkenyl, C_1 - C_8 -alkoxy, -acyl, ~~or~~ -acyloxy, ~~are~~ C_6 - C_{12} -aryl ~~or~~ -arylalkyl, ~~are~~ $-OR^8$, ~~or~~ $-N(R^8)R^9$, ~~or else are~~ N-alicyclic systems or N-aromatic systems,

R^8 is hydrogen, C_1 - C_8 -alkyl, C_5 - C_{16} -cycloalkyl or -alkylcycloalkyl, unsubstituted or substituted with a hydroxy function or with a C_1 - C_4 -hydroxyalkyl function, ~~or is~~ C_2 - C_8 -alkenyl, C_1 - C_8 -alkoxy, -acyl, ~~or~~ -acyloxy, ~~or is~~ C_6 - C_{12} -aryl or -arylalkyl,

R^9 to R^{13} are the groups of R^8 , or ~~else~~ $-OR^8$,

m and n, independently of one another, are 1, 2, 3, or 4,

X is ~~acids~~ an acid which can form adducts with triazine compounds (III).

16. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 15~~ claim 1, wherein the composition ~~and/or the organophosphorus flame-retardant component also comprise(s)~~ further comprises at least one carbodiimide-carbodiimides.

17. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 16~~claim 1, wherein the at least one binder comprises alkylalkoxylates having from 8 to 22 carbon atoms and from 1 to 80 EO units per mole of alcohol.

18. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 16~~claim 1, wherein the at least one binder ~~comprises~~is selected from the group consisting of caprolactam and/or triphenyl phosphate.

19. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 16~~claim 1, wherein the at least one binder ~~comprises~~is selected from the group consisting of ethylene glycol, propylene glycol, and/or butylene glycol, their oligomers and/or polymers, and/or their ethers.

20. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 16~~claim 1, wherein the binder ~~comprises~~is selected from the group consisting of naturally occurring, chemically modified, and/or synthetic waxes, ~~preferably carnauba waxes and montan waxes.~~

21. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 16~~claim 1, wherein the at least one binder comprises synthetic resins, ~~preferably phenolic resins.~~

22. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 21~~claim 1, ~~which wherein the composition~~ has a median particle size of from 100 to 10 000 μm , ~~preferably from 200 to 2 000 μm .~~

23. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 22~~, ~~which claim 1~~, wherein the composition has an average bulk density of from 200 to 1 500 g/l, ~~preferably from 300 to 800 g/l.~~

24. (Currently Amended) The granular flame-retardant composition as claimed in ~~one or more of claims 1 to 23~~claim 1, wherein the ratio of the amount of the at least one binder to that of the organophosphorus flame-retardant component is from 1:99 to 1:0.11, ~~preferably from 1:49 to 1:0.25, particularly preferably from 1:19 to 1:1.~~

25. (Currently Amended) A process for preparing granular flame-retardant compositions as claimed in ~~at least one of claims 1 to 24, which comprises~~claim 1 comprising the steps of adding, in a suitable mixer, the at least one binder in liquid form to the organophosphorus flame-retardant component, which has been set in motion, and mixing for a time period of from 0.01 to 1 hour at a temperature between ~~from~~ 50 to 300°C.

26. (Currently Amended) A process for preparing granular flame-retardant compositions as claimed in ~~at least one of claims 1 to 24~~claim 1, which ~~comprises~~comprising the steps of adding, in a suitable mixer, the ~~solid~~at least one binder in solid form to the ~~OPF~~organophosphorus flame-retardant component, which has been set in motion, mixing at a temperature from 50 to 300°C for from 0.01 to 1 hour, and during the process heating to the melting point of the at least one binder.

27. (Currently Amended) A flame-retardant polymer molding composition ~~which comprises~~comprising a granular flame-retardant composition as claimed in ~~at least one of claims 1 to 24~~claim 1.

28. (Currently Amended) The flame-retardant polymer molding composition as claimed in claim 27, ~~which comprises~~further comprising from 1 to 50% by weight of granular flame-retardant composition, from 1 to 99% by weight of thermoplastic polymer or a mixture of ~~the same~~thermoplastic polymers, from 0 to 60% by weight of additives, and from 0 to 60% by weight of filler.

29. (Currently Amended) The flame-retardant polymer molding composition as claimed in claim 27 ~~or 28, which comprises~~further comprising from 5 to 30% by weight of granular flame-retardant composition, from 5 to 90% by weight of the thermoplastic polymer or a mixture of the ~~same~~thermoplastic polymers from 5 to 40% by weight of additives, and from 5 to 40% by weight of filler.

30. (Currently Amended) The flame-retardant polymer molding composition as claimed in ~~one or more of claims 27 to 29~~claim 27 further comprising at least one of at least one nitrogen compound and a synthetic inorganic compound or mineral product, which also comprises components B and/or C.

31. (Currently Amended) The flame-retardant polymer molding composition as claimed in ~~one or more of claims 27 to 30~~claim 28, wherein the thermoplastic polymer or mixture of thermoplastic polymers are selected from the group consisting of HI (high-impact) polystyrene, polyphenylene ethers, polyamides, polyesters, polycarbonates, ~~or and~~ blends or polyblends of the type represented by ABS (acrylonitrile-butadiene-styrene), or PC/ABS (polycarbonate/acrylonitrile-butadiene-styrene).

32. (Currently Amended) The flame-retardant polymer molding composition as claimed in ~~one or more of claims 27 to 31~~claim 28, wherein the thermoplastic polymer or the mixture of thermoplastic polymers are selected from the group consisting of polyamide, polyester, ~~or and~~ ABS.

33. (Currently Amended) A polymer article molding, a polymer film, a polymer filament, or a polymer fiber, comprising a granular flame-retardant composition as claimed in ~~at least one of claims 1 to 24~~claim 1, wherein the article is selected from

the group consisting of a polymer molding, a polymer film, a polymer filament and a polymer fiber.

34. (Currently Amended) A polymer article as claimed in ~~molding, a polymer film, a polymer filament, or a polymer fiber as claimed in~~ claim 33, wherein the polymer is a thermoplastic or thermoset polymer.

35. (Currently Amended) A polymer article molding, a polymer film, a polymer filament, or a polymer fiber as claimed in claim 33 or 34, wherein the thermoplastic ~~polymers are~~ polymer is selected from HI (high-impact) polystyrene, polyphenylene ethers, polyamides, polyesters, polycarbonates, or blends or polyblends of the type represented by ABS (acrylonitrile-butadiene-styrene), or PC/ABS (polycarbonate/acrylonitrile-butadiene-styrene), polyamide, polyester, and/or ABS.

36. (Currently Amended) A polymer article molding, a polymer film, a polymer filament, or a polymer fiber as claimed in claim 33 or 34, wherein the thermoset ~~polymers~~ polymer are is selected from the group consisting of formaldehyde polymers, epoxy polymers, melamine polymers, or phenolic resin polymers, and/or polyurethanes.

37. (Currently Amended) A polymer article molding, a polymer film, a polymer filament, or a polymer fiber as claimed in one or more of claims 33 to 36 claim 33, ~~which comprises~~ comprising
from 1 to 50% by weight of granular flame-retardant composition,
from 1 to 99% by weight of polymer or a mixture of ~~the same~~ polymers,
from 0 to 60% by weight of additives, and
from 0 to 60% by weight of filler.

38. (Currently Amended) A polymer article molding, a polymer film, a polymer filament, or a polymer fiber as claimed in one or more of claims 33 to 37, which ~~comprises~~ claim 33, comprising:

from 5 to 30% by weight of granular flame-retardant composition,
from 5 to 90% by weight of polymer or a mixture of ~~the same~~polymers
from 5 to 40% by weight of additives
from 5 to 40% by weight of filler.

39. (New) The granular flame-retardant composition as claimed in claim 1, wherein the at least one binder is selected from the group consisting of carnauba waxes and montan waxes.

40. (New) The granular flame-retardant composition as claimed in claim 1, wherein the at least one binder comprises phenolic resins.

41. (New) The granular flame retardant composition as claimed in claim 1, wherein the composition has a median particle size from 200 to 2000 μ m.

42. (New) The granular flame-retardant composition as claimed in claim 1, wherein the composition has an average bulk density of from 300 to 800 g/l.

43. (New) The granular flame-retardant composition as claimed in claim 1, wherein the ratio of the amount of the at least one binder to that of the organophosphorus flame-retardant component is from 1:49 to 1:0.25.

44. (New) The granular flame-retardant composition as claimed in claim 1, wherein the ratio of the amount of the at least one binder to that of the organophosphorus flame-retardant component is from 1:19 to 1:1.